Math 295 - Mathematics Colloquium

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Level structures and images of the Steinberg module for surfaces with marked points

Abstract:
The moduli space $M$ of complex curves of fixed topology is an orbifold classifying space for surface bundles. As such the cohomology rings of $M$ and its various orbifold covers give characteristic classes for surface bundles. I will discuss the Steinberg module which is central to the duality present in these cohomology rings. I will then explain current joint work with T. Brendle and A. Putman on surfaces with marked points which expands on results of N. Fullarton and A. Putman for surfaces without marked points. We show that certain finite-sheeted orbifold covers $M[l]$ of $M$ have large nontrivial $\mathbb{Q}$-cohomology in their cohomological dimension.

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